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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,300	04/13/2004	David Mayhew	659P007	4770

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NIELDS & LEMACK  
176 EAST MAIN STREET, SUITE 7  
WESTBORO, MA 01581

EXAMINER
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YU, JAE UN

ART UNIT	PAPER NUMBER
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2185

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/823,300

Applicant(s)

MAYHEW ET AL.

Examiner

Jae U. Yu

Art Unit

2185

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

The examiner acknowledges the applicant's submission of the amendment dated 7/17/2006. At this point claims 7 and 8 have been amended and claim 6 has been cancelled. Claims 9 and 10 have been added. Thus, claims 1-5 and 7-10 are pending in the instant application.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-5 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by

Khare et al. (US 2003/0131201).

2. Independent claim 1 and 7 disclose, "a plurality of computing subsystems [Elements 280, 220 and 240, Figure 2], each subsystem comprising a processing unit [Processor "P", Figure 2] and a local cache memory element [Cache Memory "M", Figure 2 & "Cache State of Each Node" 291, Figure 2]".

Art Unit: 2185

"A network switching element [**"SP Switch (SPS)" 290, Figure 2**] comprising a plurality of ports and a storage element [**Cache State Storage 291, Figure 1**], each of said plurality of subsystems being in communication with a different port [**Communications via "SPS" 258, 256, 252, 257, 255, 254 and 253 (Ports are inherent), Figure 2**] of said network switching element"

"Said switching element being adapted to monitor transactions [**Monitoring data Access by another node ("Subsystem" from the claim), Paragraph 38**] transmitted via said ports and generated by said plurality of subsystems"

"Interpret said transactions to determine the status of each of said cache memory elements [**Updating the status of the cache based on the data access, Paragraph 38**], and store said status information in said storage element [**Cache State 291, Figure 2**]"

"Route future transactions to a subset of said subsystems [**Route the read request to the cache of the "Responding Node" 350, Figure 7, Paragraphs 36-37**] based on said stored status information [**Elements 320 & 330, Figure 3**]"

3. **Claim 2** discloses, "said status information comprises the states of invalid, modified, shared and exclusive [**Abstract**] for each cache line in each of said local cache memory elements [**Cache State 291, Figure 2**]"

4. **Claim 3** discloses, "said status information further comprises the state of owner [**"Ambiguous State of Responding Node"** wherein the **"Responding Node"** has ownership 330 & 340, Figure 3]".
5. **Claim 4** discloses, "a shared memory [**"Cache"** in **"I/O Node"**, Paragraph 28, Figure 1] accessible to each of said plurality of subsystems [**Element 110, Figure 1**] in communication with said switching element [**"SPS", Figure 2**]".
6. **Claim 5** discloses, "said transactions comprise memory read [**"Read Request" 310, Figure 3**], memory write [**Data Write 550, Figure 5**] and cache invalidate operations [**"Invalid State", Paragraph 29**]".
7. **Claim 8** is rejected under 35 U.S.C. 102(b) as being anticipated by Kinghorn et al. (US 5,184,220).
8. **Independent claim 8** discloses, "providing a network switching element device comprising at least a first port and a second port; receiving a first transmission [**"Subtitles", Column 1, Line 46**] via said first port [**Input for the "transmission network", Column 1, Line 45-46**]".

"Identifying said first transmission as a time critical transmission [**Subtitle transmission is time critical, Column 1, Lines 41-43**]"

"Sending said first transmission [**"Subtitles", Column 1, Lines 46**] via said second port [**Output for the "transmission network", Column 1, Lines 45-46**] if said second port is idle when said first transmission is received" Kinghorn et al. disclose interrupting current output making the output port idle, so the subtitles are allowed to transmit in Column 1, Lines 45-60.

"Interrupting a second transmission [**Interrupting the transmission of a normal teletext, Column 1, Lines 45-50**] currently in progress via second port [**Output for the "transmission network", Column 1, Lines 45-46**]"

"Transmitting a first delimiter [**Transmitting a subtitle page header, Column 1, Lines 52-53**] to notify recipient of said second transmission that said second transmission is being interrupted"

"Transmitting said first transmission [**Transmitting the subtitles, Column 1, Lines 45-60**] via said second port [**Output for the "transmission network", Column 1, Lines 45-46**]"

"Transmitting a second delimiter [**Transmitting the page header for the normal teletext and the page header for the subtitles, Column 1, Lines 53-60**] to notify recipient of said first and second transmissions that said first transmission has been sent [**Subtitles Page Header as "End of Page Signal", Column 1, Lines 68-60**] and said second transmission is being resumed [**Normal teletext transmission resumed, Column 1, Lines 50-55**]"

"Transmitting the remainder [**Transmitting the remainder of the normal teletext, Column 1, Lines 53-60**] of said second transmission"

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinghorn et al. (US 5,184,220) in view of Holmberg et al. (US 2001/0021959).
2. As per claim 9, Kinghorn et al. discloses, "a second memory element adapted to store said transmissions that are not identified as time critical within said network switching device (See claim 8 rejection above)".

Kinghorn et al. do not disclose expressly, "providing a first memory element adapted to store said time critical transmissions".

**Holmberg et al. disclose providing a static cache adapted to store performance critical processes in paragraph 59.**

Kinghorn et al. and Holmberg et al. are analogous art because they are from the same field of endeavor of memory access control.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Kinghorn et al. by including the "static cache" as taught by Holmberg et al..

The motivation for doing so would have been to "reduce the necessary memory sizes, or allow for more important data to be held in the static cache" as expressly taught by Holmberg et al. in paragraph 15.

Therefore, it would have been obvious to combine Holmberg et al. with Kinghorn et al. for the benefit of memory size optimization to obtain the invention as specified in claim 9.

3. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cadambi et al. (US 5,191,649).



4. As per **claim 10**, Kinghorn et al. disclose the “time critical transmissions (See claim 8 rejection above)”.

Kinghorn et al. do not disclose expressly, “cache coherency messages”.

**Cadambi et al. disclose, “a Write-back (MESI) cache coherency protocol” in column 27, at lines 40-45.**

Kinghorn et al. and Cadambi et al. are analogous art because they are from the same field of endeavor of memory access control.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify Kinghorn et al. by including the “Write-back (MESI) cache coherency protocol” as taught by Cadambi et al. in column 27, at lines 40-45.

The motivation for doing so would have been “avoiding bus transactions to write modified data back to memory every time a cache line is modified” as expressly taught by Cadambi et al. in column 27, at lines 40-45.

Therefore, it would have been obvious to combine Cadambi et al. with Kinghorn et al. for the benefit of efficient bus use to obtain the invention as specified in claim 10.

### ***Arguments Concerning Prior Art Rejections***

#### **1<sup>st</sup> Point of Argument**

Regarding claims 1 and 7, the applicant argues that Khare does not disclose a "network switching element". However, Khare discloses expressly, a "SP Switch" implemented in a computer network in Figure 2.

### **2<sup>nd</sup> Point of Argument**

Regarding claim 8, the applicant argues that Kinghorn does not teach "a network switching device having a first and second port". However, Kinghorn does teach a "transmission network" having a first and second port in column 1, at lines 40-60, which "switches" its output based on priority.

### **3<sup>rd</sup> Point of Argument**

Regarding claim 8, the applicant states that Kinghorn does not teach the added claim limitation, "when said first transmission is received". However, Kinghorn does teach receiving the first transmission in column 1, at lines 45-46. Further, Kinghorn teaches interrupting the current transmission (making output port idle) to give the subtitles a higher transmission priority in column 1, at lines 40-60.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

A. Claims No Longer in the Application

Claim 6 was cancelled by the amendment dated 7/17/2006.

B. Claims Rejected in the Application

Per the instant office action, claims 1-5 and 7-10 have received a second action on the merits and are subject of a second action final.

C. Direction of Future Correspondences

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jae Un Yu who is normally available from 9:00 A.M. to 5:30 P.M. Monday thru Friday and can be reached at the following telephone number: (571) 272-1133.

If attempts to reach the above noted examiner by telephone are unsuccessful, the Examiner's supervisor, Sanjiv Shah, can be reached at the following telephone number: (571) 272-4098.

Art Unit: 2185

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

10/12/2006

Jae Un Yu  
Art Unit 2185

JY

  
SANJIV SHAH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100